IN THE CLAIMS

1. (Original) A power distribution assembly comprising:

a plurality of power modules for controlling multiple vehicle systems;

a first microprocessor having a first serial bus in communication with each of said power modules;

a second microprocessor having a second serial bus in communication with each of said power modules independent from said first serial bus;

a first power supply for powering said first microprocessor and each of said power modules; and

a second power supply for powering said second microprocessor and each of said power modules independently from said first power supply.

2. (Currently Amended) The assembly according to claim 1 wherein said first microprocessor is in communication with said second microprocessor via said first serial bus and said second microprocessor is in communication with said first microprocessor via said second serial bus to independently determine which microprocessor is an active control microprocessor and which microprocessor is a back-up control microprocessor.

3. (Original) The assembly according to claim 2 wherein said active control microprocessor transmits and receives data while said back-up control microprocessor only receives data until a determination is made by said first and second microprocessors to change said back-up control microprocessor to said active control microprocessor.

4. (Original) The assembly according to claim 2 wherein said first microprocessor actively monitors the health of said second microprocessor via said first serial bus and said second microprocessor actively monitors the health of said first microprocessor via said second serial bus.

5. (Original) The assembly according to claim 1 wherein each of said power modules independently determines which of said first or second serial busses is in control.

6. (Original) The assembly according to claim 1 wherein said first and second microprocessors, said first and second power supplies, and said power modules comprise a master power distribution assembly.

7. (Original) The assembly according to claim 6 including at least one satellite power distribution assembly located remotely from said master power distribution assembly wherein said satellite and master power distribution assemblies communicate via said first and second serial busses.

8. (Original) The assembly according to claim 7 wherein said satellite power distribution assembly includes a plurality of satellite power modules for controlling additional vehicle systems, a first satellite serial bus to provide communication between said first serial bus and each of said satellite power modules, and a second satellite serial bus to provide communication between said

second serial bus and each of said satellite power modules independently from said first satellite serial bus.

9. (Original) The assembly according to claim 8 wherein said first and second microprocessors provide command data for each of said satellite power modules.

10. (Original) The assembly according to claim 1 wherein said first and second microprocessors communicate with a vehicle data bus via a common high bandwidth parallel bus.

11. (Original) A method of distributing power to a plurality of power modules in a power distribution assembly to control multiple aircraft systems comprising the steps of:

(a) connecting a first serial bus between a first microprocessor and each of the power modules;

(b) connecting a separate second serial bus between a second microprocessor and each of the power modules;

(c) powering each of the power modules and the first microprocessor with a first power supply; and

(d) independently powering each of the power modules and the second microprocessor with a second power supply.

12. (Original) The method according to claim 11 including the steps of the first microprocessor communicating with the second microprocessor via the first serial bus and the

second microprocessor communicating with the first microprocessor via the second serial bus to determine which microprocessor is the active control microprocessor and which microprocessor is the back-up control microprocessor.

13. (Original) The method according to claim 12 including the steps of transmitting data and receiving data from the active control microprocessor and only transmitting data to the back-up control microprocessor.

14. (Original) The method according to claim 13 including the step of generating command data only from the active control microprocessor.

15. (Original) The method according to claim 14 including the steps of the first microprocessor actively monitoring the health of the second microprocessor via the first serial bus, the second microprocessor actively monitoring the health of the first microprocessor via the second serial bus, comparing the health of the active control microprocessor to a predetermined diagnostic and changing the back-up control microprocessor to active control microprocessor if the predetermined diagnostic is not satisfied.

16. (Original) The method according to claim 11 including the step of each power module independently determining which of the first or second serial busses is in control.

17. (Original) The method according to claim 11 further including the steps of defining the first and second power supplies, the first and second microprocessors, and the power modules as a master power distribution assembly and distributing power from the master distribution power assembly to at least one satellite power distribution assembly.

18. (Original) The method according to claim 17 including the steps of providing a plurality of satellite power modules in the satellite power distribution assembly for controlling additional aircraft systems and controlling each power module with commands only from the first or second microprocessor via the first or second serial busses, respectively.

19. (Original) The method according to claim 19 including the steps of powering each of the satellite power modules with either the first or second power supply.